MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/2019 SESSION

TSN 2201 / TCE2321 – COMPUTER NETWORKS

(All Sections / Groups)

11th MAR 2019
9:00 a.m – 11:00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 printed pages including cover page with 5 questions only.

2. Attempt **FIVE** out of **FIVE** questions. All questions carry equal marks and the distribution of marks for each question is given.

3. Please write all your answer in the Answer Booklet provided.

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Question 1 [10 marks]

(a) What is the function of Transport Layer in OSI Model?

[1 mark]

(b)Why the wires inside an UTP cable are twisted? Explain the benefit of twisting the wires.

[2 marks]

(c) In order to fully utilize the benefit of twisting the wire, how the TX+, TX-, RX+ and TX- pin in UTP cable should be paired along with the direction of the current flow.

[2 marks]

(d) In a noisy channel, the maximum capacity is 1 Mbps, the Bandwidth is 100KHz. What is the SNR value in decibel?

[3 marks]

(e) At the sender end, the power level is 10milliwatt. The power loss is -1dB. Show your calculation without the use of calculator. What is the power level at receiver end?
Note: remember what is 10dB and 3dB.

[2 marks]

Continue...

Question 2 [10 marks]

(a) What is the difference between an access port and a trunk port in Layer 2 switch?

[2 marks]

(b) Design a bridge network consist at most 8 bridges (the less the better) that fulfil the following requirement as shown in table below. For example, BridgeC has only Designated Port. Draw the diagram, label the root bridge, Bridge priority, bridge Name, link speed/cost and the port role (RP, DP, BP). These bridges may or may not be necessary connected to each other.

No	Bridge Name	Root Port (RP)	Designated Port (DP)	Blocked Port (BP)	
1	BridgeA	No	No	No	Single disconnected bridge
2	BridgeB	No	No	Exist	Not Possible
3	BridgeC	No	Exist	No	
4	BridgeD	No	Exist	Exist	
5	BridgeE	Exist	No	No	
6	BridgeF	Exist	No	Exist	
7	BridgeG	Exist	Exist	No	
8	BridgeH	Exist	Exist	Exist	

[4 marks]

(c) Give one limitation in Spanning Tree protocol IEEE802.1d.

[2 marks]

(d) What is the maximum bridge diameter that can be supported in IEEE802.1d?

[1 mark]

(e) What is the purpose of MAX AGE in Spanning Tree BPDU?

[1 mark]

Question 3 [10 marks]

(a) Given a network topology in lab test1, you are asked to configure static and default routes for the network. In what kind of topology, the default route can be used to reduce the size of the routing table and in what kind of topology the default route is not recommended? Draw a diagram to illustrate your answer. (Note: 1 mark for a valid diagram)

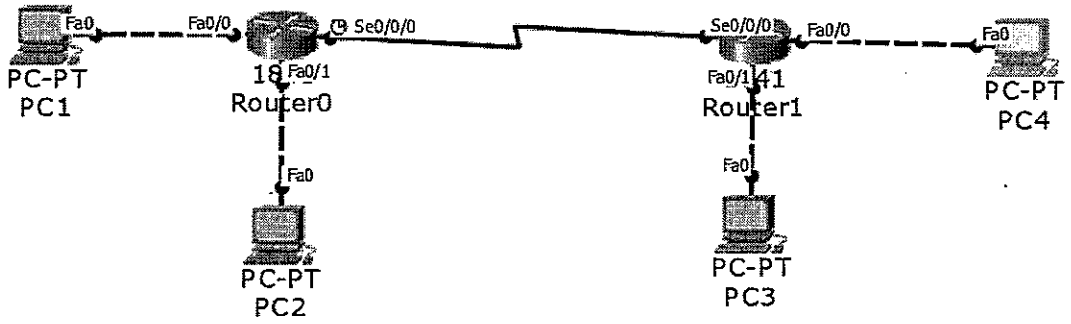
[3 marks]

Continue...

(b) When someone tries to ping a PC from a different network in a properly configured network, the initial first few ping packets will be lost. After that the ping is successful. Explain the reason behind this phenomenon.

[2 marks]

(c) Given the network topology below.



Device	IP Address	Device	IP Address
PC1	200.1.A.1	Router0 fa0/0 to PC1	200.1.A.100
PC2	200.1.B.1	Router0 fa0/0 to PC1	200.1.B.100
PC3	200.1.C.1	Router1 fa0/1 to PC3	200.1.C.100
PC4	200.1.D.1	Router1 fa0/0 to PC4	200.1.D.100
Router0 se0/0/0	200.1.E.100	Router1 se0/0/1	200.1.E.101

Note: A < B, C < D.

The interface network mask is 255.255.255.0 for the whole network.

The network is configured using static route that minimized the usage of IP addresses, no default route is configured and all devices can ping each other.

In router0 and router1, when "show ip route" is typed there are only 4 network route entries are shown instead of 5 entries. What is the proper value of A, B, C, D and E?

[3 marks]

(d) Using Post 2005 IP Subnetting example, you have a network 192.168.1.0/24, you would like to borrow 4 bits from the host bit to create 16 equal size sub-networks. What is the second subnetwork broadcast address?

[1 mark]

(e) With reference to question 3d, what is the fourth subnetwork network address?

[1 mark]

Continue...

Question 4 [10 marks]

a) Explain how IPv6 EUI-64 addressing can lead to user privacy issue.

[2 marks]

b) What is the problem an IPv6 user will face if he uses IPv6 EUI-64 addressing without DHCPv6 services in his notebook?
(Note1: Other than privacy issue
Note2: Tips available at ciscommu youtube lecture under IPv6 addressing).

[2 marks]

c) A user ping a server 10.1.1.1 and the ping is successful. Then, the user sends an initial telnet request to a server 10.1.1.1, however there is no telnet server running in the server. What error packet will the user get from the server?

[2 marks]

d) Explain the difference between TCP Slow Start phase and TCP Congestion Avoidance phase.

[2 marks]

e) What is the difference between IMAP and POP3?

[2 marks]

Question 5 [10 marks]

(a) What are the differences between SHA-1 and AES algorithm?

[2 marks]

(b) Name the four classes of traffic in ATM.

[2 marks]

(c) IPSec have 2 protocols AH and ESP. What is the difference between AH and ESP?

[2 marks]

(d) What is the performance difference between Shared Based Tree and Source Based Tree in IP Multicast?

[2 marks]

(e) What is the role of RP in IP Multicast?

[2 marks]

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